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CLAIMS

What is claimed is:

- 10 Sub A₂ > 1. A part attachable to a substrate via a welding process, comprised of aluminum or an aluminum alloy, wherein a surface of the part
15 5 to be welded to the substrate is provided with a titanium containing material capable of lowering the contact resistance between the part and the substrate during a welding process.
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10 2. The part according to Claim 1, wherein the titanium containing material is formed by contacting the part with an acidic solution containing titanium ions.
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15 3. The part according to Claim 3, wherein the acidic solution is a passivating solution.
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20 4. The part according to Claim 3, wherein the acidic solution is chromium-free.
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20 5. The part according to Claim 1, wherein said acidic solution includes ALODINE 2040.

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6. The part according to Claim 1, wherein the part is a weld stud having a welding face.

7. The part according to Claim 6, wherein at least a portion of the 5 welding face is provided with a titanium aluminum oxide layer.

8. The part according to Claim 7 wherein said part is applied to a substrate having an average thickness of as little as 0.8 mm.

10. ~~Sub a,~~ 9. A method of producing a weldable aluminum part having titanium dispersed along a surface thereof, said method comprising the steps of:

providing an acidic solution containing titanium ions; and

contacting the weldable aluminum part with the acidic solution for a sufficient period of time to permit the application of titanium along a surface 15 of the part;

whereby the contact resistance of the part is lowered during a subsequent welding process.

10. The method according to Claim 9, wherein the acidic solution is 20 a passivating solution.

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11. The method according to Claim 9, wherein the acidic solution is chromium-free.

12. The method according to Claim 9, wherein said acidic solution includes ALODINE 2040.

13. The method according to Claim 9, wherein the part is a weld stud having a welding face.

14. The method according to Claim 9, wherein at least a portion of the welding face is provided with a titanium aluminum oxide layer.

15. The method according to Claim 15 wherein said part is applied to a substrate having an average thickness of as little as 0.8 mm.

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